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**Assessing the impact of floods and flood legislation on
residential property prices**

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Abstract

The changing development and population sprawl in major cities, especially those located in high rainfall areas, has resulted in the need to review and re-assess potential flood impacts in these cities.

In many cases these new flood lines and flood maps have placed residential property that was previously considered to be flood free to now be considered to be potentially flood liable.

Previous research based in Sydney and the UK has identified the fact that residential property that has been subject to flooding has a decreased price and higher investment risk than flood free property in the same location. These studies have also shown that the greatest impact on residential property subject to flooding is just following a flood event.

In June 2009, Brisbane City Council released revised flood maps for the Greater Brisbane region and these maps have identified areas that have not previously been considered flood liable.

This paper will analyse the sale performance of flood liable streets in the main flood areas of Brisbane over the period January 1990 through to June 2009, to determine the variation in price for these flood liable areas to the residential property immediately adjoining them. The average sale price will be tracked on both a geographic location and socio-economic basis.

Sales data from June 2009 to February 2010 will also be tracked to determine if the announcement and availability of new flood level data has had any impact on residential property prices in these locations.

Introduction

The intensity and impact of flooding has been a growing concern world-wide. The number and severity of flood events have increased over the past two decades and the resulting aftermath of flooding has been more severe than previous flood events, with increasing social and monetary costs to rectify (Halligan, 2004).

Any major town or city located in a river valley can be subject to varying degrees of flooding. In many cases the risk of flooding can be reduced by the construction of flood mitigation works, such as levee banks and spillways. However, despite these works flood prone areas cannot be guaranteed to be flood free in the future. Changes to the environment and the increase of urban developments only increase the risk of water run-off and these new and expanding urban areas can also change previous flood levels (Eves, 2004).

In Australia planning authorities have surveyed and mapped all flood prone areas. From these maps they have been able to identify all land that is flood liable as well as providing an indication of how often such land will be affected by flooding. Flood affectation has been classified into four categories ranging from flood free to possible flood inundation once every 5 years, with the increasing occurrence of flood events and the availability of GIS mapping techniques, these flood maps are being updated regularly and models generated to determine future impacts of flooding (Pryce and Chen, 2009).

In Australia this information is available to all participants in the property market and is used as the basis for building approvals, property valuations, property insurance and property finance.

Flooding in the Brisbane region since 1974 has resulted in the loss of 32 lives and severe damage to over 9,000 houses (BOM, 2009). Although the last extensive major flood in Brisbane occurred in 1974, largely due to the combination of enduring heavy rainfall and tidal surges in the Brisbane Riverways system, there have been a number of smaller flood events since. This has ensured that the potential impacts of flooding are still of concern to the general public, especially in the lower lying inner city suburbs of Brisbane or those close to the Brisbane River system.

Floods and Property Prices

Previous studies in Australia by Eves, (2002), Lambert and Cordery (1997), Fibbens (1992), Bialaszewski (1990) have determined that property that is either flood affected or on wetlands have a reduced value compared to similar properties without these detriments. Similar results have been recorded in overseas studies in the UK (Lamond et al, 2006; Eves, 2004) also showing a decrease in property values following a flood event. In the US Studies by Troy and Romm, (2004); Bin and Polasky, (2003); Harrison et al, 2001; Shultz and Fridgen, (2001), Tobin and Montz, (1994, 2002) found that flooding reduced property prices in the range of 2.9% to 30% depending on severity of flooding.

There is also research currently available that also shows that the location of a property can have a positive impact on residential property values. According to Eves (2004) and Tobin and Montz (1994) the location of a property with direct access to a river or good river views can attract a premium price in the market and also the improvements made to a property after a flood can actually result in the property being worth more after the flood than before the flood event. A Canadian study by Babcock and Mitchell (1981) found that after a severe flood in West Ontario there was no perceivable difference in value before and after the floods for property that had minor flooding when compared to property that suffered more serious flood damage.

Although the detrimental aspects of flooding are documented in relation to the variation in price based on a flood liable and a flood free property of similar location and characteristics, there has been limited research in the Brisbane basin area in relation to the price variation and investment return over an extended time period. Previous studies have also been undertaken in a regulatory regime that did not openly provide the general public with full details of flood levels and flood affectation implications. The case in Brisbane (and other Australian Local Government Areas) prior to June 2009, was that any interested party in a possibly flood affected property would have to directly seek this information. In June 2009, Brisbane City Council provided updated flood maps for the Brisbane river system, publically announced these new flood maps, and has provided access to the full mapping details on their website, as well as providing a Property Flood wise report on request. These new flood maps also identified areas that are now considered to be subject to flooding that were not so affected in the older flood maps for Brisbane City Council due to the flood mitigation works carried out in respect to the Wivenhoe Dam. This construction of this dam also resulted in the change in the anticipated flood lines for Brisbane.

This study has been undertaken to:

- Benchmark the performance of flood affected and non-flood affected residential property in the flood prone suburbs of Brisbane.
- Adopt this benchmark data as the starting point to review the impact of current flood information and legislation on future residential property performance in these locations.
- Establish if the difference in values between flood liable residential property and flood free residential property is constant, or decreases as the time period from the last known flood increases.
- Determine if the impact of flooding has a similar affect on both a geographic and suburb value basis, and
- Determine if the more public available information has a direct impact on residential property values, without an actual flood event.

Residential Flood Zones

Brisbane, like most cities, which have developed in a major river system, has certain areas that have been built upon despite the fact that they are subject to flooding or have become flood liable due to changing urban development. The relatively high summer rainfall and cyclonic rainfall systems that occur in the Brisbane region, have been off-set to some extent by a large network of water storage dams to assist with flood mitigation. Despite these works there are still major and minor flood events in the Brisbane City area.

Despite the relative infrequent occurrence of major extensive flooding in Brisbane since 1974, previous flood events have shown that the damage caused by over floor flooding can be significant both in relation to property damage and service disruption.

To minimise the flood damage to property restrictions have been placed on the type and scope of real estate development that can take place on flood liable land.

In Australia, State and Local Government Authorities have adopted a four type rating system for property within flood prone areas. These classifications are:

1. Very flood liable, possible flooding every 0 to 5 years;
2. Moderately flood liable, with possible flooding every 5 to 20 years;
3. Marginally flood liable, possible flooding every 20 to 100 years;
4. Flood free, outside inundation levels of a 100 year flood.

All the above classifications for property in flood areas are based on the land being covered by rising flood waters. This does not always result in actual flood waters entering or covering the floor of the improvements. Residential building design and land works can increase the actual building floor level height above the various flood level classifications, which in turn can lessen the impact and severity of flooding.

Influence of Flooding on Property

Flood water has been defined as either over land flooding or over floor flooding.

Over land flooding is defined as water covering the actual land, gardens and sheds but not actually entering and covering the floor of the main property (residential, commercial or industrial). Over land flooding can result in some isolation due to restricted vehicular access to the property and in some cases the disruption of services. Some minor infrastructure such as roads, sheds, garages and landscaping can also be damaged but actual property loss is limited.

However, over floor flooding is more severe, with the actual property being inundated with flood water. As well as the problems associated with over land flooding there will be a greater chance of actual property structural damage including wall linings and electrical wiring. In cases where regular flood inundation occurs permanent structural damage of walls and foundations can occur. In addition to the structural damage over floor flooding can also result in the substantial loss of personalty, such as equipment, floor coverings, furniture and soft furnishings.

As stated by Lambley and Cordery (1991) the property that is subject to over floor flooding can result in the overcapitalisation of the property due to the requirement to restore the property after flooding has occurred. Lambley and Cordery (1991) also considered that not rectifying the damage from flooding may minimise the problem of overcapitalisation but would result in the loss of property value due to the neglected state of the building and overall structural depreciation.

The nature of rainfall in Brisbane, with both regular minor and less frequent moderate and major flooding in the Brisbane River system may have a different influence on residential property values compared to areas where the flooding is less frequent and severe due to the acceptance of these events by the general population

Studies by Eves (2004, 2002; Lamond et al 2006) have shown that one of the major aspects of infrequent flooding is that the actual problems associated with flooding are only apparent during and immediately after a flood. At all other times these problems are not visual and in fact can be a positive factor in relation to property values. The residential property may have severe problems during a period of flooding but offers aesthetic water views and close proximity to water sports at all other times.

Since 1840 there have been 10 major floods in the Brisbane region, 11 moderate floods, and 23 minor floods (BOM, 2009). If the average flood covers a period of 3 days, then the percentage of time these most prone flood affected properties have been inundated over the past 35 years is only 0.01%.

In some cases the actual nature of the geography of flood prone land in the Brisbane area is that certain land can be flood liable and actually not be in close proximity to or in visual contact to the river system that causes the flooding. Despite the possibility of being advised of potential flooding by the relevant Local Government Authorities during the property search process buyers could discount the impact of flooding when there have been extended periods of average to lower rainfall and no visible or recent evidence of flooding.

Identification of Flood Liable Property

Each Local Government Area in Queensland, which has areas that are liable to flooding produces flood maps that indicate which land is subject to the various classifications of flooding. These maps are available for public inspection, and in the case of Brisbane City Council, are available in full detail on their website.

As previously stated, property buyers (commercial and residential) in the Brisbane region can obtain a Flood Wise Property report from Council prior to purchasing the property

Therefore, the prudent purchaser is fully aware of the fact that the property being purchased is flood liable and factors this detrimental aspect of the property into the purchase decision.

A property's possible flood liability also has implications in relation to property finance and property insurance.

In Australia it is not possible to insure a property for flood damage. The effects of flooding and the subsequent restoration costs can not be covered by insurance, but must be considered as a long term cost by the purchaser. This disadvantage is limited to some extent by the advance flood warnings that are issued to flood liable property owners allowing personal property to be removed.

Lending institutions will not finance properties that are subject to severe flooding. Finance is generally not available to residential properties where the building floor level is below the 1 in 100 year flood level (subject to over floor flooding) identified by the Local Government Authority.

On this basis the detrimental effects of flood liable property is not only restricted to actual physical and property damage but also reduced financing and insurance opportunities that should also influence value.

Research Methodology

With the implementation of a more visual and available flood mapping system by Brisbane City Council in June 2009, the ability for the residential property buyer to locate and evaluate possible flood levels in Brisbane is now greater than in the past. The research issue that will be addressed with this on-going study relates to the impact that this legislative change will have on buyer perception and attitude to residential property that could be impacted by moderate to major flooding.

Study Area

Based on the current Brisbane Flood maps, released in June 2009, the flood liable residential suburbs and streets therein have been identified. These 17 suburbs cover all geographic areas of Brisbane and also a wide coverage of building type, age, construction, and property value. Housing age covered those areas developed up to 1980. Newer residential subdivisions have not been approved in the past 30 years if located in flood prone areas, so the new housing suburbs were not included in the study. However, with changing demographics, flood mitigation works and increased water run-off potential; these areas will be reviewed as flood maps are revised.

Streets now located in designated flood zones were identified across Brisbane. These streets cover a full range of housing sub-markets based on value, from older inner city areas to newer middle and lower housing markets in the middle and outer suburbs of Brisbane City Council area.

Table 1: Suburb Sales Transactions 1990-2009.

| Suburb | Flood Affected Sales | Non-Flood Sales |
|---------------|----------------------|-----------------|
| Ashgrove | 252 | 234 |
| Albion | 83 | 342 |
| Bardon | 289 | 207 |
| Bulimba | 195 | 135 |
| Chelmer | 438 | 32 |
| Clayfield | 589 | 240 |
| East Brisbane | 171 | 212 |
| Fairfield | 208 | 215 |
| Graceville | 131 | 96 |
| Herston | 223 | 108 |
| Indooroopilly | 167 | 58 |
| Kelvin Grove | 149 | 261 |
| McGregor | 392 | 233 |
| New Market | 99 | 189 |
| St Lucia | 121 | 35 |
| Tennyson | 86 | 61 |
| Wynnum | 33 | 120 |
| Total | 3626 | 2778 |

These flood affected streets were then matched with adjoining non-flood affected streets in the same suburb. For analysis purposes the results are shown as North Brisbane, West Brisbane, and South Brisbane. The properties in the study are all residential properties comprising a mix of both single free standing residential houses and low rise multi-residential unit complexes. All flood liable properties are

predominantly subject to over land flooding with very few properties actually subject to over floor flooding. On analysis of the study areas, it was noted that a number of free standing single residential dwellings in the flood liable areas had been built or elevated to lift the habitable floor level of the property above the designated 1 in 100 year flood level. In such cases the flooding would be classified as over land flooding only. However, over the past decade suburb gentrification and an extended period of drought in south-east Queensland has resulted in modification of much of this traditional form of elevated Queensland housing resulting in a concrete slab on ground construction to the lower level. It is anticipated that much of this housing stock will now be subject to over floor flooding in the future.

These 17 suburbs are conveniently located with good access to all forms of transport and services; therefore, the potential flood liability is the only major limiting property factor for this particular residential market.

All the streets in the study are subject to flooding from the Brisbane River system. Details of the suburbs selected and the sales data obtained from RP Data for each suburb are shown in Table 1. This Table shows that the analysis is based on 6400 sale transactions across the flood and non-flood affected streets, and this represents approximately 340 sales per annum.

After identifying the areas in these suburbs that were subject to varying degrees of flooding, a physical inspection was carried out to determine the type and level of development in the flood liable areas. As the study is focusing on residential price movement, all streets with any form of development other than residential were not included in the analysis. The suburbs selected for the analysis were all in middle to high value locations and are older established suburbs of Brisbane. A number of these suburbs were considered to be lower value suburbs in the past but due to gentrification and their close proximity to the CBD are no longer classed as lower value property. The lower value suburbs of Brisbane are now located in the newer suburbs to the north and south of the city and these have all developed over the past 20 years on flood free land.

Sales data was analysed on an annual basis to determine the average annual sale prices for both the flood free and the flood liable properties. These results were compared to determine annual trends, average annual price movements and the average annual return and risk for both the property classifications. The analysis to June 2009 will form the basis for the continued tracking of residential property prices as the general public become more aware of the available data and the changes in flood maps as additional flood models are incorporated and future flood events occur.

RESULTS

The analysis of the Brisbane market, in relation to the impact of flood affectation, has been carried out in three stages. The first stage is based on the combined Brisbane data, followed by the suburbs on a geographic location basis and finally on the basis of suburb value. The data is analysed to determine the price differential between the two classes of residential property, the capital return performance of the property classes and the investment performance on an index basis over the period 1990-2009.

Brisbane Composite

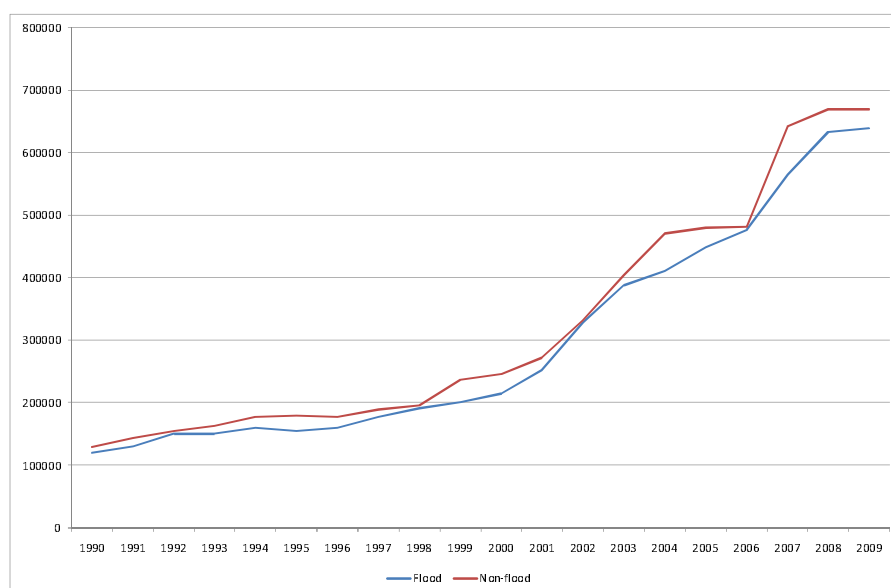
There is a definite price differential between similar type properties that are flood free compared to the same type of properties that are flood liable. From Table 2 it can be seen that the price differential is not uniform but varies on an annual basis. The greatest price difference between the two groups was in 2007. This year was a period of boom residential price movement in the Brisbane residential property market, with premium properties, with water views attracting the highest prices. Over the study period the average annual price difference between non-flood and flood affected property has been \$23,012. This difference on the Brisbane composite basis was expected due to the fact that there has not been a severe flood in Brisbane since 1974, 16 years prior to the first sales transactions in this study.

Table 2 Data Summary Brisbane Composite: 1990-2009

| Year | Average Annual Sale Price-Flood Liable (\$) | Average Annual Sale Price-Flood Free (\$) | Annual Price Difference Flood free-liable |
|----------------|--|--|--|
| 1990 | 119736 | 129394 | 9658 |
| 1991 | 130203 | 142886 | 12683 |
| 1992 | 150322 | 154485 | 4163 |
| 1993 | 150526 | 163478 | 12952 |
| 1994 | 159847 | 176813 | 16966 |
| 1995 | 154580 | 179323 | 24743 |
| 1996 | 159799 | 176884 | 17085 |
| 1997 | 177407 | 189292 | 11885 |
| 1998 | 190666 | 196121 | 5456 |
| 1999 | 199996 | 236192 | 36197 |
| 2000 | 214038 | 246561 | 32523 |
| 2001 | 252228 | 271370 | 19142 |
| 2002 | 327752 | 330809 | 3057 |
| 2003 | 387734 | 403352 | 15618 |
| 2004 | 410480 | 469938 | 59459 |
| 2005 | 448687 | 480037 | 31350 |
| 2006 | 476421 | 481098 | 4677 |
| 2007 | 565042 | 642118 | 77076 |
| 2008 | 633367 | 669213 | 35846 |
| 2009 | 639211 | 668909 | 29697 |
| Average | | | 23012 |

Figure 1 shows the price trend of the flood free and flood liable residential property over the period 1990 to 2009. Basically the price of residential properties in the two areas has followed very similar price trends.

Figure 1: Average Annual Price: Flood and Non Flood: 1990-2009



Both property types had similar price trends from 1990-1999 and although both had significant increases in average prices from 2001 to 2009. However, this figure does show the significant variation in average prices for flood free and flood liable land during the periods 2003 to 2006 and then from 2007 to 2008.

Figure 2 Brisbane Composite Residential Capital Return Index: Flood and Non Flood: 1990-2009

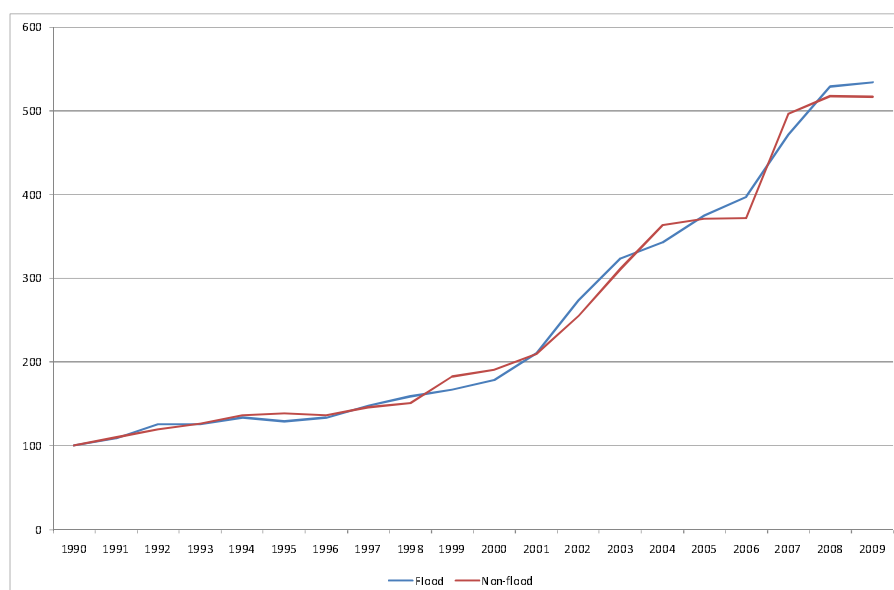


Figure 2 and Table 3 show the average annual capital returns and the capital return indices for flood free and flood liable residential property in Brisbane. From Figure 2, it can be seen that the trend in capital growth for the two property types have been relatively similar, particularly in the period 1990 to 1999. During the boom period of 2001 to 2007, the fact that there were no major floods and a prolonged drought in South East Queensland saw both markets increasing from an index value of 209 in 2001 to 514 in 2009 for flood free property and flood prone property increasing from 211 to 534 in the same period. Table 3 shows that during the period 1990-2009, the average annual capital return for the flood free areas of Brisbane was 9.39% at a risk

of 9.37%. During the same period the average annual return for flood liable property was slightly higher at 9.48%, with a volatility of only 7.89%. The lower volatility for the flood liable land was due to the relatively smaller gains in the boom times and lower falls in the price of these properties in the down cycle.

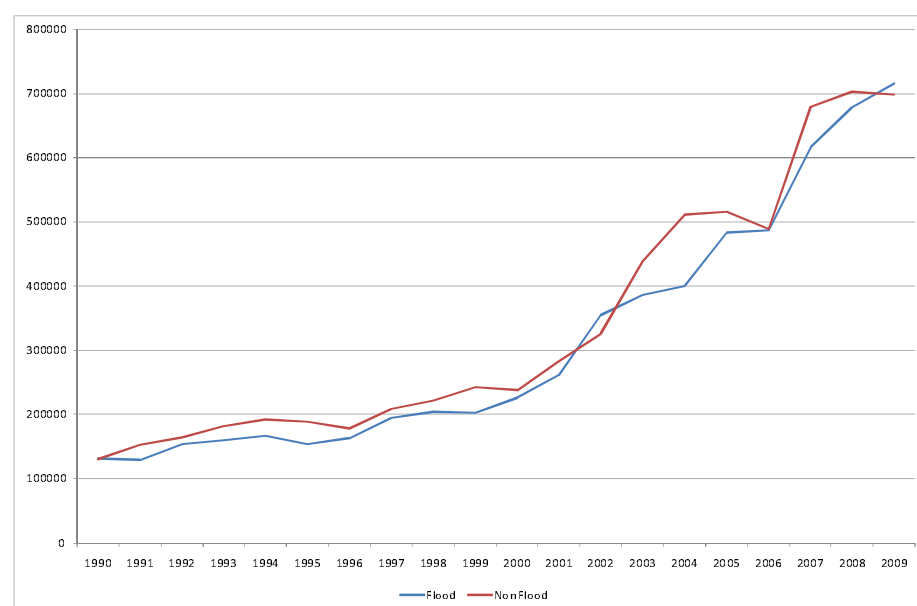
Sub-Sector Results

The relatively similar performance of flood free and flood liable residential property in Brisbane over the study period on a composite, is not a true indication on how the residential markets and buyers perceive the impact of flooding on specific property sectors.

To obtain a greater understanding of the flood impact in the Brisbane market the sales data was sorted on a geographic and socio-economic basis based on individual suburb sales transactions. Figures 3, 4 and 5 shows the average price difference for flood liable and non flood residential property in North, Western and Southern suburbs of Brisbane.

In all three sub-sectors the average price of the Non flood residential property has generally been higher than flood liable property in the same geographic location.

Figure 3: Average Annual Price Movement: Brisbane Northern Suburbs: Flood and Non Flood



Although the general trend in price movement has been similar across all geographic sub-markets, Figure 3 shows that during the period 2002 to 2005, there was a significant difference between the average price of flood and non-flood residential property in the Northern suburbs, but this difference decreased during the period 2006 to 2009, to the point that the flood affected areas actually had a higher average price in 2009. These suburbs are generally the higher value suburbs of Brisbane and the presence of advantageous attributes such as city location, water and mountain views outweigh the possible flood affectation problems..

Figure 4 Average Annual Price Movement: Brisbane Western Suburbs: Flood and Non Flood

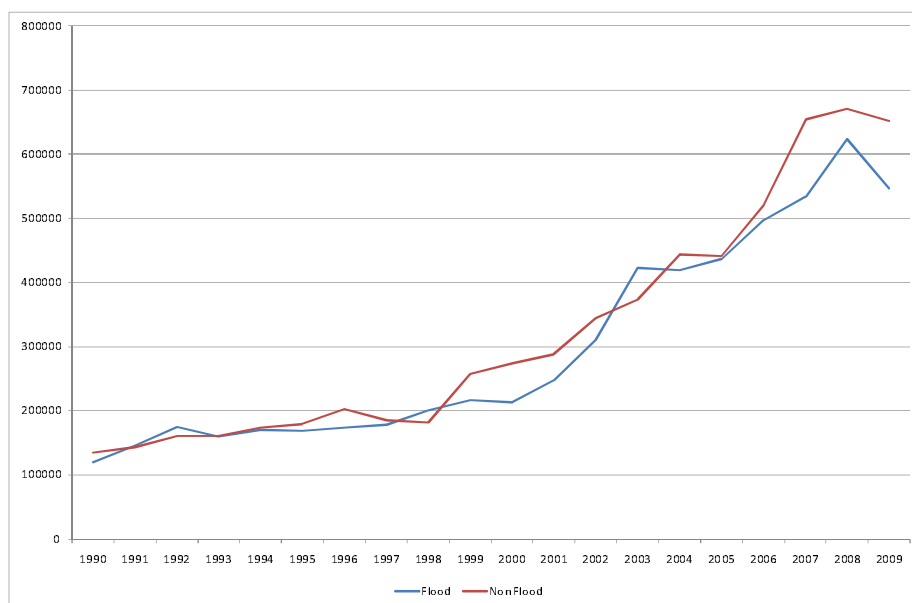
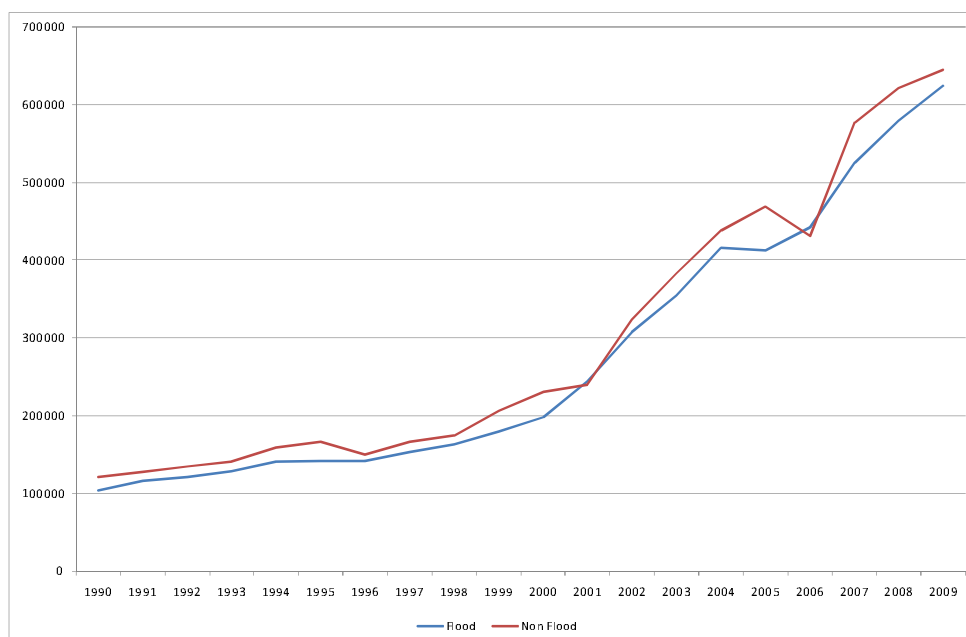


Figure 4 shows that the price difference between flood and non-flood property in the Western suburbs of Brisbane has been more variable than the other sub-markets. During the period 2002 to 2004, the flood liable property in the western suburbs was selling at a higher price than the non flood property and again the price difference for the non-flood property compared to the flood liable residential property was increasing from 2005 to 2008, with both property classifications showing a decline in price in 2009. In the Northern suburbs only the non-flood property showed a slight fall in prices in 2009.

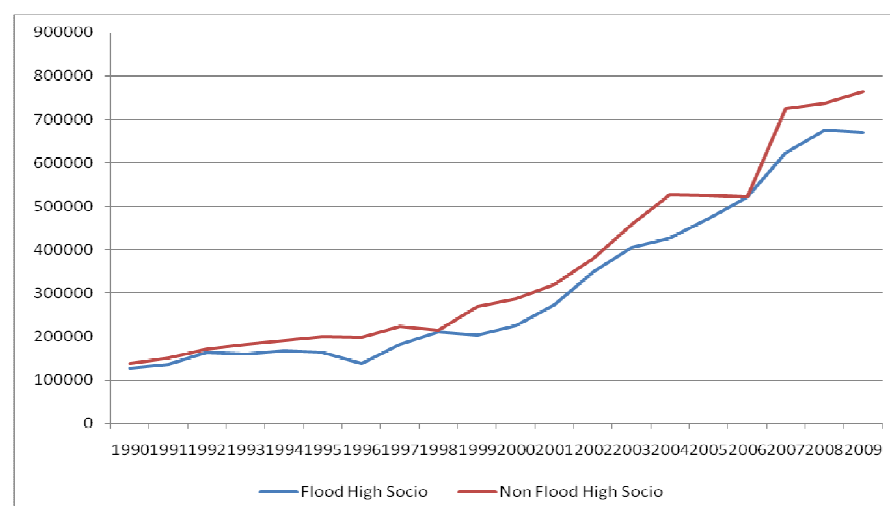
Figure 5 Average Annual Price Movement: Brisbane Southern Suburbs: Flood and Non Flood



Residential property prices for flood and non flood property in the southern suburbs of Brisbane have been relatively similar across the study period, and have not shown the significant differences in average annual prices, as seen in the other sub-sectors (refer to Figure 5). This Figure also shows that the difference between the flood and non flood average price has widened in the period 2007 to 2009, and reflects the change in the awareness of new flood heights combined with the a slow property market that tends to place more importance on stigma issues than the case in a booming market.

When the suburbs are grouped on a socio-economic basis, there is a noticeable difference between annual residential price movements in middle and high value suburbs of Brisbane. Figures 6 shows that flood free property in high value suburbs has always been greater than the average price of residential property in the same location that is flood liable. Again, Figure 6 shows that the margin between the average price in the high value suburbs has been greatest in the period 2002 to 2006 and has widened significantly in 2008 to 2009.

Figure 6 Average Annual Price Movement: Brisbane High Socio-economic Suburbs: Flood and Non Flood

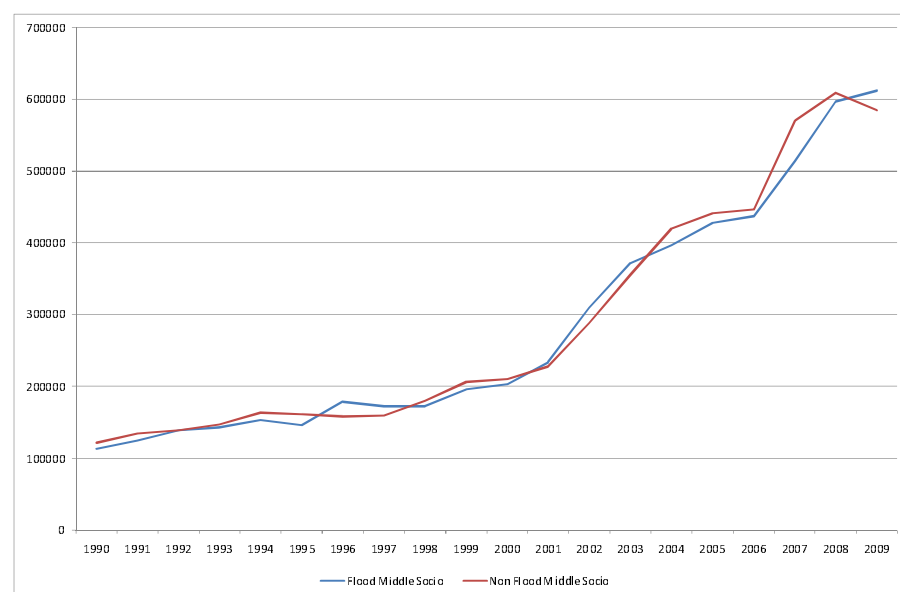


In comparison, Figure 7 shows that the average price between flood and flood free residential property in the middle value suburbs has been relatively consistent over the period 1990-2009, especially in the period 1990 to 2003. This figure also shows that there have been a number of years, where the price of flood affected residential property in the middle value suburbs have been higher than the flood free property (1996-1998 and 2001 to 2003).

Table 3 provides a summary of the average annual capital returns, volatility and risk/return ratio for each of the residential property sub-markets.

From this table, it can be seen that the average annual capital returns for both flood and non-flood residential property on a sub-sector basis has ranged from 8.96% to 10.12%. Flood liable residential property in the Southern suburbs has shown the highest return at 10.12%, with the lowest returns being recorded in the Flood liable Western suburbs (8.96%). In respect to the non flood residential property, the highest returns were recorded in the Northern (9.82%) and Southern suburbs (9.72%), with the Western suburbs showing the lowest non flood average annual capital return of 9.20%.

Figure 7 Average Annual Price Movement: Brisbane Middle Socio-economic Suburbs: Flood and Non Flood



Contrary to expected investment theory, the flood liable residential property in the southern suburbs had the highest average annual capital returns but also the lowest volatility of 7.29%. This is significantly lower than all other sub-markets and the composite volatility of 7.89% for flood liable property. On a geographic basis the highest volatility was recorded in the non flood northern suburbs (12.35%) and flood liable western suburbs (12.06%)

Table 3 Brisbane Residential Property Investment Performance: Sub Sectors: 1990-2009

| Sector | Average Annual Capital return (%) | Average Annual Risk (%) | Risk/Return ratio |
|----------------------------|-----------------------------------|-------------------------|-------------------|
| Brisbane Flood | 9.48 | 7.89 | 1.20 |
| Brisbane Non Flood | 9.39 | 9.37 | 1.00 |
| Southern Suburbs Flood | 10.12 | 7.29 | 1.39 |
| Southern Suburbs Non flood | 9.72 | 11.35 | 0.86 |
| Northern Suburbs Flood | 9.82 | 10.78 | 0.91 |
| Northern Suburbs Non Flood | 9.84 | 12.35 | 0.80 |
| Western Suburbs Flood | 8.96 | 12.06 | 0.74 |
| Western Suburbs Non Flood | 9.20 | 11.73 | 0.78 |
| Middle Socio Flood | 9.67 | 9.57 | 1.01 |
| Middle Socio Non Flood | 9.02 | 9.57 | 0.94 |
| High Socio Flood | 9.76 | 11.74 | 0.83 |
| High Socio Non Flood | 9.86 | 10.63 | 0.93 |

From an investment perspective flood liable residential property in the southern suburbs of Brisbane has shown the best risk return performance with a risk return ratio of 1.39, the only geographic sub-sector to record a risk return ratio greater than 1.00.

On a socio-economic basis the high value suburbs have outperformed the middle value suburbs for both flood free and flood liable residential property. However, on a risk adjusted basis the middle value suburbs have been better performing due to their relatively low volatility compared to the higher value suburbs. On a risk adjusted basis the best performing socio-economic sector was flood liable middle value suburbs, with a risk/return ratio of 1.01

Research Conclusions

This research confirms the results of earlier studies that flood liable property has less value compared to similar property that is not flood liable. However, this analysis over a 20 year period suggests that the price difference between flood liable and flood free land is not a constant percentage, but varies from year to year, particularly in high value residential areas.

As was the case in previous flood studies, the price differential has been influenced by the number of significant flood events that occur rather than the fact that the residential property may be in a flood liable location. There has not been a significant flood event in the Brisbane region during the study period, only a small number of minor flood events. The period from 2001 to 2009 has been a record drought period for South east Queensland and the low water storage capacities has acted as a good flood defence during this period, and this has been reflected in the residential property markets.

The actual risk of ownership for the two residential property types is very similar and the actual long term average annual return is also very similar, when compared on an overall basis, but this can vary when sub-sector analysis is undertaken. Higher value areas of Brisbane often have value factors such as views, housing quality and location to services that outweigh the potential impact of flood inconvenience. However, many of these factors are not present in the lower value suburbs so the affect of flooding is a greater issue in these sub-sectors.

Of particular note is that virtually all areas recorded a greater difference between the price of non flood and flood liable residential property in 2009, when the new flood maps were published and advertised.

The study also shows that following a period of both decreasing property prices and only small annual increases in property prices the price difference between flood liable and flood free land will decrease, provided there are no further incidences of over floor flooding.

Future research

This study has provided the base data to track flood and non flood residential property in Brisbane into the future. With current water capacity at maximum levels the potential for serious flooding now exists and with the added information now available in relation to flood levels, it is anticipated that the impact of potential flooding will be a purchase consideration across the residential property market of Brisbane. This scoping research will allow this impact to be tracked and analysed.

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